

REMARKS

Claims 1-9 are all the claims pending in the application.

Claims 1-2 and 5-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Okamoto (U.S. Patent No. 5,825,445) in view of Miyazawa (U.S. Patent No. 6,011,604). Additionally, claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Okamoto in view of Miyazawa and Ueda (U.S. Patent No. 5,600,461). Finally, claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Okamoto in view of Miyazawa and Iizuka (U.S. Patent No. 6,515,720). Applicant traverses the rejections for at least the reasons discussed below.

Regarding claims 1 and 2, Applicant submits that the cited references fail to teach that the liquid crystal molecules are oriented approximately parallel to the short axis and that the signal lines extend in the long side direction of the pixel region. Both Okamoto and Miyazawa are silent with respect to the liquid crystal molecule orientation with respect to the short axis of the pixel region.

Similarly, both references are silent with respect to the signal lines extending in the line side direction of the pixel region. The Examiner acknowledges that Miyazawa fails to teach this feature. The Examiner contends that this feature is well known in the art and would have been obvious to one skilled in the art. Furthermore, the Examiner contends that this feature is shown in Fig. 4 of Okamoto. Applicant submits that the Examiner's contention is incorrect. Fig. 4 of Okamoto does not show any signal lines and therefore cannot show the signal lines running along the long side of the pixel region. Additionally, Applicant submits that this feature is not obvious as the Examiner suggests because by having the signal lines extend in the long side

direction, the electric field that is generated between the pixel electrode and signal lines will be parallel with the orientation of the liquid crystal molecules (since the molecules are oriented in the short side direction). By allowing the electric field to be parallel with the molecule orientation, twisting of the liquid crystal molecules is suppressed. Neither reference recognizes, teaches or suggests this feature, nor does any cited reference recognize the effects of the liquid crystal molecule orientation.

Regarding claims 5-8, Applicant submits that the cited references fail to teach or suggest that the compensation electrode is formed in order to absorb the force line of the electric field generated by the signal line and the scanning line. The Examiner alleges that electrode 35b of Miyazawa teaches the compensation electrode of claim 5. However, electrode 35b of Miyazawa is not positioned in a manner to absorb the force line of the electric field between the pixel electrode 34 and the signal line 32. As such, the combination of Miyazawa and Okamoto fails to teach or suggest that the compensation electrode is formed in order to absorb the force line of the electric field generated by the signal line and the scanning line.

Finally, regarding claims 1-9, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness. Specifically, the Examiner has failed to provide a convincing line of reasoning (by a preponderance of evidence) of why one skilled in the art would have found the combination of the teachings of Okamoto and Miyazawa obvious. *See MPEP* § 2143.01.

The Examiner's sole reason for combining these two references is to "enhance the aperture ratio of the device." See Office Action of November 12, 2003, page 3. In other words, the Examiner contends that it would have been obvious to adapt the configuration of Miyazawa

to the device of Okamoto to “enhance the aperture ratio of the device.” However, the proposed modification of Okamoto to meet the configuration of Miyazawa (i.e. forming the signal lines and pixel electrode in the same layer) is unrelated to the aperture ratio. The aperture ratio is the ratio between the transmission distance of optical leakage to the cell gap. The aperture ratio does not concern whether the signal lines, scanning lines or pixel electrode are in the same layer, but rather it concerns the orientation directions of the substrate surfaces with respect to each other and the signal/scanning lines. As shown in Figs. 12A-D and 13A-D and corresponding disclosure, the aperture ratio is maximized based on the orientation of the substrate surfaces with respect to the signal/scanning lines. Therefore, modifying the device of Okamoto to have the signal lines and pixel electrode in the same layer as taught in Miyazawa, would not enhance the aperture ratio. Thus, one skilled in the art would not be motivated to make such a change to the structure of Okamoto. As such, Applicant submits that the Examiner’s motivation for combining the teachings of Okamoto and Miyazawa is unsupported.

In view of the above remarks, Applicant submits that the Examiner has not provided a proper motivation to combine the teachings of the cited references. Furthermore, Applicant submits that the Examiner has not shown that the limitations of claim 1, 2 and 5-8 are taught or suggested in the cited references. Therefore, Applicant respectfully requests that the rejection of claims 1-9 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

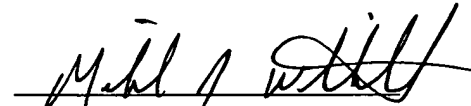
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
Appln. No.: 09/735,907

Attorney Docket No.: Q62301

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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